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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* SHMUEL ROTH, ODED BEN-DAVID,  
and MOSHE BEN-CHORIN

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Appeal 2009-002283  
Application 10/500,896  
Technology Center 2600

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Decided: March 15, 2010

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Before JOSEPH F. RUGGIERO, MAHSHID D. SAADAT,  
and KARL D. EASTHOM, *Administrative Patent Judges*.

RUGGIERO, *Administrative Patent Judge*.

DECISION ON APPEAL

## STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134 from the Final Rejection of claims 1-22, which are all of the pending claims. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

Rather than reiterate the arguments of Appellants and the Examiner, reference is made to the Brief (filed August 20, 2007), the Answer (mailed November 28, 2007), and the Reply Brief (filed January 28, 2008) for the respective details. Only those arguments actually made by Appellants have been considered in this decision. Arguments which Appellants could have made but chose not to make in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

### *Appellants' Invention*

Appellants' invention relates to a display system for reproducing a proofed image intended for printing on a substrate using a set of inks, the display including a light source that generates a set of at least three primary colors. Further included in the display system is a controller that combines the set of the at least three primary colors to substantially reproduce the image. (*See generally* Spec. 5:21-31).

Claim 1 is illustrative of the invention and reads as follows:

1. A display for reproducing a proofed image intended for printing on a substrate using a set of inks, the display comprising:
  - a light source to generate light of a set of at least three colors having at least three different chromaticities, respectively, said chromaticities being selected to define a viewed color gamut which entirely covers a perceived color gamut of said set of inks when printed on said substrate; and

a controller to produce a light pattern corresponding to said proofed image by selectively controlling the path of the light of said at least three colors.

*The Examiner's Rejection*

The Examiner's Answer cites the following prior art references:

Lind	US 6,069,601	May 30, 2000
Karakawa	US 6,304,237 B1	Oct. 16, 2001
Baba	US 2002/0122019 A1	Sep. 5, 2002 (filed Dec. 18, 2001)
Wada	US 6,972,736 B1	Dec. 6, 2005 (filed Dec. 1, 1999)

Claims 1-4, 6-13, 15, 16, and 18-22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Karakawa in view of Lind.

Claim 5 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Karakawa in view of Lind and Wada.

Claims 14 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Karakawa in view of Lind and Baba.

ISSUES

The pivotal issues before us are whether the Examiner erred in finding the obviousness to the ordinarily skilled artisan of combining:

- a) the soft proofing display color selection teachings of Lind with the color generation and light path controller teachings of Karakawa; and
- b) the sequential color generation teachings of either Wada or Baba with the combined teachings of Lind and Karakawa.

## FINDINGS OF FACT

The record supports the following findings of fact (FF) by a preponderance of the evidence:

1. Karakawa discloses (Fig. 3; col. 1, ll. 59-61) the generation of light of at least three different colors utilizing a monochromatic red, green, and blue pulsed laser source.
2. Karakawa further discloses (Fig. 3; col. 5, ll. 32-38) that the red, green, and blue light from the pulsed laser light source is passed through transmissive and reflective LCD panels which act as spatial light modulators to control the path of light and to produce a display when projected onto a display screen.
3. Lind discloses (Abstract; col. 2, ll. 32-55) a display for soft proofing an image to be reproduced using a set of selected printing colors and a plurality of display elements which display a color that is spectrally matched to a set of printing colors.
4. Lind further discloses (Figs. 2-3; col. 3, ll. 39-65) a display 14 including a plurality of layers of color pigmented display elements that constitute a filter stack 22.
5. By appropriate selection of the pigmented layers, Lind discloses (col. 4, ll. 21-26) that spectral curves can be obtained for each primary color of the display which closely approximate the spectral characteristics of ink on paper.
6. Lind also discloses (col. 4, ll. 27-30) that the described invention is not limited to any specific colors and that any combination of colors can be used to generate the colored filters including additive and subtractive colors.

7. Wada discloses (Fig. 1; col. 5, l. 50–col. 6, l. 8) the sequential generation of light by passing polychromatic light 11 through a rotary color filter wheel 12.

8. Wada further discloses (col. 3, ll. 19-25) that the time-division sequential generation of colored light results in an absence of any perception of color breakup caused by either the action of a presenter or the eye movement of a viewer.

9. Wada also discloses (col. 16, ll. 32-39) that the color wheel filter colors can be selected to be cyan, magenta, and yellow, i.e., printing process colors, or “multi-colored lights of more than three colored lights.”

10. Baba discloses (¶ [0008]) the sequential generating of colored light by passing white light through a color wheel divided into red, green, and blue filter sectors.

11. Baba further discloses (Fig. 9; ¶¶ [0118]-[0119]) that the color wheel can be divided into seven parts including the additive colors red, green, and blue, as well as the subtractive colors cyan, magenta, and yellow.

## PRINCIPLES OF LAW

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988). In so doing, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966) (stating that 35 U.S.C. § 103 leads to three basic factual inquiries: the scope and content of the prior art, the differences between the prior art and the claims at issue, and the level of ordinary skill in the art). Furthermore,

“there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness” . . . [H]owever, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.

*KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

Further, “[t]he test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference . . . . Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.” *In re Keller*, 642 F.2d 413, 425 (CCPA 1981); see *In re Nievelt*, 482 F.2d 965, 968 (CCPA 1973).

## ANALYSIS

### *I. The obviousness rejection of claims 1-4, 6-13, 15, 16, and 18-22 based on the combination of Karakawa and Lind.*

With respect to representative independent claim 1, Appellants’ arguments initially focus on the contention that the Examiner has not established a proper basis for the proposed combination of Karakawa and Lind.<sup>1</sup> In Appellants’ view (App. Br. 6-10; Reply Br. 2-5), the color display systems of Karakawa and Lind have fundamentally different principles of operation and are intended to solve different problems and, therefore, teach away from combination with each other. According to Appellants, the color

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<sup>1</sup> Appellants argue rejected claims 1-4, 6-13, 15, 16, and 18-22 together as a group, making particular reference only to independent claim 1. See App. Br. 5-10. Accordingly, we select claim 1 as representative. See 37 C.F.R. § 41.37(c)(1)(vii).

display system of Karakawa is an *additive* color producing system, in which monochromatic red, green, and blue light are added to each other in different combinations to produce color. In contrast, according to Appellants, the system of Lind is a *subtractive* color producing system which produces a single color by successive filtering of white light by a set of three stacked and aligned layers of cyan, magenta, and yellow.

We do not agree with Appellants. It is apparent to us from the Examiner's stated position (Ans. 5, 14-16) that the Examiner is not suggesting the bodily incorporation of the stacked color filter device teachings of Lind into the monochromatic RGB light source device disclosed by Karakawa. Rather, it is Lind's teaching (FFs 3-5) of selecting a combination of colors that will result in a "soft proofing" display of colors that will spectrally match a set of printing colors that is relied on as a rationale for the proposed combination with Karakawa. Further, Appellants' arguments to the contrary notwithstanding, Lind discloses (FF 6) that the described printing color spectral matching display device is not limited to subtractive color combinations but also includes colors generated by additive color combinations.

For the above reasons, the Examiner's 35 U.S.C. § 103(a) rejection of representative independent claim 1, as well as claims 2-4, 6-13, 15, 16, and 18-22 not separately argued by Appellants, is sustained.

*II. The obviousness rejection of dependent claim 5 based on the combination of Karakawa, Lind, and Wada.*

We also sustain the Examiner's obviousness rejection of dependent claim 5 in which the Examiner added Wada to the combination of Karakawa and Lind to address the sequential light generation feature of dependent



claim 5. We find no error in the Examiner's finding (Ans. 11-12, 16-18) that an ordinarily skilled artisan would have recognized and appreciated that Wada's teaching (FFs 7-8) of sequentially generating colors by passing emitted white light through a color filter wheel would have been an obvious enhancement to the combined teachings of Karakawa and Lind to avoid perceived color breakup caused by the eye movement of a viewer. We also note that, while Wada's illustrated example in Figure 1 depicts the color filter wheel 12 as having red, blue, and green filters, the device of Wada is not limited to those colors. As disclosed by Wada (FF 9), the color wheel filter colors can be selected to be cyan, magenta, and yellow, i.e., printing process colors, or "multi-colored lights of more than three colored lights."

*III. The obviousness rejection of dependent claims 14 and 17 based on the combination of Karakawa, Lind, and Baba.*

Although claims 14 and 17 are directed to the sequential generation of colors by passing light through a color wheel, similar to previously discussed claim 5, the Examiner relied upon Baba, instead of Wada, as a proposed combination with Karakawa and Lind. We sustain this rejection for the same reasons as discussed with respect to claim 5 and the Wada reference. Similar to Wada, Baba discloses (FF 10) the sequential generation of colored light by passing white light through a color wheel divided into red, green, and blue filter sectors. We also note, similar to the disclosure of Wada, that Baba also discloses that the colors that make up the color wheel filters are not limited to red, green, and blue. Significantly, Baba discloses (FF 11) that the color wheel can be divided into seven parts including the additive colors red, green, and blue, as well as the subtractive colors cyan, magenta, and yellow.

### CONCLUSION OF LAW

Based on the findings of facts and analysis above, we conclude that the Examiner did not err in rejecting claims 1-22 for obviousness under 35 U.S.C. § 103(a).

### DECISION

The Examiner's decision rejecting claims 1-22 under 35 U.S.C. § 103(a) is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED

babc

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